

## Course Syllabus for MCHE 201 – Introduction to Engineering Design

MCHE 201: Introduction to Engineering Design

3 credit hours; two 50-minute lecture sessions and two 50-minute lab sessions/week

Joshua Vaughan, Associate Professor, Department of Mechanical Engineering and Carla Hodge, Instructor, Department of Mechanical Engineering

Introductory Mechanical Design Tools, William Singhose and Jeff Donnell, ISBN: 9780984221042

*a. brief description of the content of the course (catalog description)*

Techniques for creating, evaluating, synthesizing, implementing, and documenting solutions to open ended engineering problems, team and project management.

*b. prerequisites or co-requisites*

Prerequisite: MCHE 101, Introduction to Mechanical Engineering and ENGR 211, Statics

Pre/ Co-requisite: N/A

*c. indicate whether a required, elective, or selected elective course*

Required for Mechanical Engineering.

### Specific goals for the course

*a. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.*

<b>By the end of the course, the student will be to:</b>	<b>SOs</b>
Complete an objective design process through the Conceptual Design phase	1, 2, 3, 5, 7
Generate a comprehensive listing of customer requirements using the House of Quality	1, 2
Distill engineering specification from customer requirements and formulate them in a Specification Sheet	1, 2, 7
Develop the functional requirements of a design (Function Tree)	1, 2

Develop alternative concepts and objectively evaluate them using Evaluation Matrices	1, 2
Effectively communicate the design process through both written and oral technical documentation	1, 2, 3, 5
Develop and manage project timelines using tools like the Gantt Chart	5
Work within a team framework and effectively divide tasks among the team	5
Write and execute basic code on embedded systems	1, 2, 7
Interface with and process data from a variety of basic analog and digital sensors	1, 2, 7
Control basic actuators (brushed DC motors, stepper motors, servomotors, and linear actuators)	1, 2, 7

*b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.*

1	2	3	4	5	6	7
M	H	H	L	H	L	H

H-Strongly Supported, M-Supported, L-Minimal Support.